



U.S. Department of the Interior
Bureau of Land Management



Best Management Practice Information Sheets

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Contact: Jim_Perry@blm.gov

Best Management Practices (BMPs) Information Sheets

The following BMP Information Sheets provide additional guidance on the proper application of BMPs for Fluid Minerals operations. BMPs should be adapted to meet the needs of the site-specific situation. When selecting the appropriate BMP, or its degree of use, consider the least restriction that would accomplish the same resource protection objective. Also, consider the cost of the BMP relative to the value of the resources to be protected.

BMP Information Sheets will be added and updated as new information is developed. Field Offices and Operators are encouraged to provide additional technical information and photos to the BLM Washington Office addressing the applicability, limitations, effectiveness, maintenance, monitoring, and cost of the BMPs included within this document.

(jim_perry@blm.gov or tom_hare @blm.gov)

BMP Index

- Interim Reclamation of Well Locations and Access Roads.
- Painting Production Facilities to Minimize Contrast with the Background.
- Design and construct energy service roads to a safe and appropriate standard, no higher than necessary to accommodate their intended use.
- Final Reclamation of Well Locations, Roads, and pipelines.

BMP: Interim Reclamation of Well Locations and Access Roads

Goal: To minimize long-term loss of habitat, forage, visual resources, soils, and to prevent the introduction of invasive species.

Description: Recontour (reshape) all portions of the well location that are no longer needed for future production operations. Recontouring restores the well location back to the original contour or a contour that blends with the surrounding topography leaving only the minimum unrecontoured area necessary for future workover operations and oil, gas, water, or condensate loadout. Salvaged topsoil is respread over the entire well location as soon as practical; except in the very minor areas the operator determines must be surfaced to accommodate year-round traffic. All portions of the well location, excluding surfaced areas, are then revegetated (native plant species are preferred) subject to the exceptions identified below. Re-topsoil and revegetate access road cut & fill slopes, backslopes and road shoulders, and borrow ditches. Also, consider revegetating the travel surface of surfaced roads and turnarounds, where practical. With low traffic roads, this will result in a hardpan, two-track road that is stable and requires less maintenance.

Exceptions: The operator must be allowed to drive, park, and set up future workover and maintenance operations on any newly revegetated areas. Where there is a moderate to high risk of wildfire, a small buffer area may be left around production facilities. Where future wells are anticipated to be drilled from the same well location within a year or two, approval to delay interim reclamation may be granted. At **final** reclamation, all portions of the well location not previously recontoured to the original contour or a contour which blends with the surrounding topography must be stripped of topsoil and vegetation, recontoured, re-topsoiled, and revegetated.

Interim Reclamation of Well Locations and Access Roads



View of a well pad which has undergone interim reclamation, and over time, the native sagebrush vegetation has recolonized the disturbed area.

Interim Reclamation of Well Locations and Access Roads



View of well pad that has been reshaped, topsoiled, and revegetated. Production tanks have been moved offsite.



View of a road which has undergone interim reclamation of the borrow ditches and portions of the road surface.

BMP: Painting Production Facilities to Minimize Contrast with the Background.

Goal: To minimize visual contrast by making production facilities less noticeable.

Description: Paint above ground production facilities (pumping units, pipes, compressors, tanks, treaters, etc.) a color(s) which allows the facility to blend into the background. All new equipment brought onto the site should be painted the same color(s). Use the following considerations when selecting a color and shade: 1. Semi-gloss paints will stain and fade less than flat paints. 2. The background is typically a vegetated background and seldom a solid soil background. 3. The selected color should be one or two shades darker than the background. 4. Consider the predominant season of public use, but never paint an object to match snow.

Exceptions: The operator may need to paint drill rig anchors and those minor working tips and edges of production facilities that are subject to OSHA safety requirements a red, yellow, or orange color. The operator should not be required to paint wooden, distribution power poles; and electrical lines. To minimize contrast, operators should avoid lighter colors, such as desert tan or brown, white doors or roofs, galvanized silver electrical boxes and guardrails, signs with white backgrounds, etc.

Painting Production Facilities to Minimize Contrast with the Background



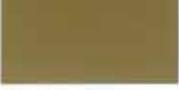
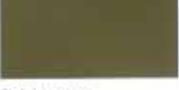
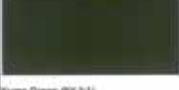
Pumping unit painted “Beetle”, a dark green, to help it blend with the background vegetation.

Painting Production Facilities to Minimize Contrast with the Background



Vegetation colors are used, rather than soils colors.



Standard Environmental Colors	
 Sand Beige (2Y 6/3)	 Desert Brown (2.5YR 6/2)
 Cahobai Canyon (2.5Y 6/2)	 Slate Gray (5Y 6/1)
 Tudor Brown (2.5Y 4/2)	 Brush Brown (10 YR 5/3)
 Juniper Green (no Munsell Color)	 Slate Green (5Y 4/2)
 Yuma Green (5Y 3/1)	 Largo Red (2.5R 5/4)

Numbers in parentheses refer to Munsell Soil Color Charts.
Reference: Munsell, R. W., et al. and Munsell Color Charts, Munsell Color Services Laboratory, 1931.

BMP: Design and construct energy service roads to a safe and appropriate standard, no higher than necessary to accommodate their intended use.

Goal: To minimize long-term loss of habitat, vegetation, soil, visual resources.

Description: All roads should be designed and constructed to the appropriate standard, no higher than necessary to adequately accommodate their intended functions. Design, construction, and maintenance activities should be consistent with national policies for safety and resource protection. Consider the anticipated average daily traffic, vehicle loads, anticipated vehicle speeds, potential for use by the public, soil types, time of year use will occur, topography, etc.

In some cases, overland travel within a defined corridor or via two-track roads during dry conditions is preferable to construction of all-weather access roads. Overland travel or two-track roads may be appropriate for exploratory wells or wells where year-round access needs have been reduced due to the use of other BMPs, such as remote monitoring and flowlines to offsite production facilities. Where practical, roads should follow the contours of the land to minimize cuts & fills and visually obtrusive lines in the landscape.

Exceptions: Overland or two-track roads may not be suitable for use in certain soil types or during certain soil conditions. Consider the balance between the potential for muddy, braided two-track roads vs. the certain loss of vegetation and the construction/reclamation expense of constructing crowned & ditched, surfaced roads to wells that may be potential dry holes.

Design and construct energy service roads to a safe and appropriate standard, no higher than necessary to accommodate their intended use.



View of a two-track road containing buried power and flowlines. Note the vegetation regrowth and lack of vehicle traffic due to remote monitoring of the well and flowlines to offsite production facilities.

View of two-track roads to drilling operations. If the wells are dryholes, reclamation needs are minimal. If the well is a producer, the road can be upgraded, if necessary. This technique minimizes loss of vegetation.



Note that neither roads are linear (straight line). They follow the natural contour of the land, eliminating the need for cut and fill. Also, your visual focus on the road does not direct your attention down a linear path straight to the well.

BMP: Final Reclamation of Well Locations, Roads, and Pipelines

Goal: To restore the landform, vegetation, habitat, soil, and visual resources.

Description: Recontour all disturbed areas, including access roads, to the original contour or a contour which blends with the surrounding landform. Even if areas are growing adequate vegetation, do not hesitate to strip topsoil from all areas that have not been previously recontoured. Respread topsoil to a uniform depth across all disturbed areas. Leave a slightly rough surface if broadcast seeding onto the surface or a smoother surface if broadcast seeding into dozer track marks or if drill seeding. Consider the use of a high phosphorous/low nitrogen fertilizer and a mulch for those sites subject to wind or water erosion. Revegetation may result in a color contrast over the short-term, but if you used native seed, the local native plants, including shrub species, can be expected to recolonize over time. Nearly all oil and gas roads should be reclaimed following abandonment of the producing wells. Ripping and seeding roads is usually not sufficient. Most roads need to be recontoured back to the original contour so that they blend back into the landscape. A good job of recontouring, site preparation, and seeding, will greatly reduce the visibility of the well site 3 to 20 years from abandonment.

Final Reclamation of Well Locations, Roads, and Pipelines



It is recommended that dryhole markers be monumented below ground level. If you recontour the well pad to the original contour, respread topsoil, and seed with native species, you will have a more difficult time finding your reclaimed well locations over time.

Different well locations.



Final Reclamation of Well Locations, Roads, and Pipelines



Road and pipeline locations recontoured back to the original contour.

